

# Rice variety guide 2018–19

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David Troidahl, Research &  
Development Agronomist, Yanco

Peter Snell, Rice Breeder, Yanco

Brian Dunn, Research Agronomist,  
Yanco

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## Important management practices

- Plant a mix of varieties over a range of sowing dates and sowing methods to minimise the risk of a cold event reducing grain yield across all your crops.
- Sowing on time provides the best chance of avoiding sterility due to cold at microspore and helps maximise whole grain yields with maturity occurring during mild temperatures.
- Use the NIR Tissue Test Service at panicle initiation (PI) to determine nitrogen topdressing requirements.
- Use **red edge imagery**, yield maps or cut/fill maps to target sampling in different zones. NDVI can only detect differences where PI nitrogen levels are below 80 kg N/ha.
- Start increasing water depth after PI so that 25 to 30 cm is achieved on the high side of the bays at microspore. Microspore occurs approximately 14–18 days after PI.
- For maximum whole grain millout consider grain development stage, field layouts and forecast weather conditions to determine the appropriate time for draining.

**Table 1. Summary of rice yields (t/ha) 2017–18 season compared with five-year weighted averages by region and top 20% yields across all regions for 2017–18 season**

Variety	Region										
	MIA		CIA		EMV		WMV		All regions		
	5-yr Av	2017 -18	5-yr Av	2017 -18	5-yr Av	2017 -18	5-yr Av	2017 -18	5-yr Av	Top 20%	2017 -18
Reiziq <sup>(d)</sup>	11.8	11.7	10.2	10.2	10.2	10.8	9.9	9.8	11.0	13.2	11.0
Sherpa <sup>(d)</sup>	-	-	-	-	10.7	11.0	10.3	10.5	10.6	12.5	10.8
Opus <sup>(d)</sup>	-	-	-	-	10.0	10.6	9.8	10.4	9.9	12.0	10.5
Langi	9.6	9.9	9.0	8.8	9.1	9.3	-	-	9.4	11.8	9.5
Topaz <sup>(d)</sup>	9.1*	9.4	8.1*	7.3	-	-	-	-	8.9*	11.1	8.9
Doongara	11.3	12.1	9.4	9.9	-	-	-	-	10.7	13.3	11.7
Koshihikari	-	-	-	-	7.7	7.7	6.9	9.7	7.5	9.0	7.5
Illabong	-	-	-	-	11.1	11.4	-	-	11.1	12.3	11.4
Viand <sup>(d)</sup>	9.9*	9.1	9.2*	9.4	9.2*	8.6	8.4*	8.8	9.4*	11.2	8.8
YRK5	-	-	-	-	7.5*	8.1	7.0*	6.7	7.2*	9.8	7.5
All Varieties	11.1	11.2	9.7	9.6	10.2	10.3	9.8	9.8	10.3	12.8	10.4

\*Less than five years of commercial data. <sup>(d)</sup> Plant Breeder's Right granted by IP Australia. Yield data provided by SunRice Grower Services

Table 2. Rice variety agronomic characteristics 2018–19

Variety	Yield potential % Reiziq <sup>(b)</sup>	Maturity (days different to flower than Reiziq <sup>(b)</sup> )	Seedling Vigour 1 = weak 5 = strong	Tolerance to cold stress 1 = weak 5 = strong	Lodging susceptibility
Reiziq <sup>(b)</sup>	100	Standard	4	3	Resistant
Sherpa <sup>(b)</sup>	105	-3	3	5	Resistant
Opus <sup>(b)</sup>	100	2	3	4	Moderately resistant
Langi	95	-2	3	3	Moderately resistant
Topaz <sup>(b)</sup>	85	1	1	1	Resistant
Doongara	95	1	3	1	Resistant
Koshihikari	80	4	3	4	Susceptible
Illabong	105	4	2	3	Moderately resistant
Viand <sup>(b)</sup>	95	-10	4	4	Moderately susceptible
YRK5	85	-10	4	3	Susceptible

**Yield potential** – is based on results from experiments conducted in commercial fields. Yield compared with Reiziq<sup>(b)</sup> at recommended sowing time and average growing conditions.

**Maturity** – days to flowering data is from measurements of experiments located in commercial fields across sowing methods, regions and at commercial nitrogen rates.

**Seedling vigour** – Topaz<sup>(b)</sup> and Illabong have weak seedling vigour, so extra care is required at sowing to ensure good establishment.

**Tolerance to cold stress** – variety tolerance to cold at the reproductive stage. Rating is based on varieties inherent cold tolerance and plant height. Tall varieties gain less protection from deep water (25 to 30 cm) at microspore. Excess nitrogen increases susceptibility to cold-induced sterility.

**Lodging** – lodging varies between seasons. In some seasons most varieties will lodge to some extent. Semi-dwarf varieties are most resistant to lodging, whilst tall-strawed

varieties like Koshihikari and YRK5 are susceptible and should only be drill sown.

Aerial sowing increases lodging potential of all varieties compared to drill-sowing.

Lodging due to 'haying-off' is a result of draining rice too early prior to harvest and reduces yield and wholegrain millout.

**Ideal sowing time** – planting within the recommended sowing window (Table 3) allows fast, uniform crop establishment, highest probability of limited cold stress at microspore, and high grain quality at harvest.

The sowing windows are based on the performance of each variety in previous seasons and long-term average temperatures. Sowing before the recommended window can increase cold risk even more than sowing later.

The longer a crop grows before permanent water is applied the slower crop development. It is important that crops planned for delayed permanent water are sown earlier than

conventional drill crops to account for the delay. Aerial sown and dry broadcast crops

should be sown later as they develop the fastest (Table 3).

Table 3. Recommended sowing/first flush dates for rice varieties, regions and sowing methods.

Variety	MIA/CIA -			Murray Valley -		
	Ideal sow/first flush time			Ideal sow/first flush time		
	Aerial / dry broadcast	Drill	Delayed permanent water	Aerial / dry broadcast	Drill	Delayed permanent water
Reiziq <sup>(d)</sup> Opus <sup>(d)</sup>	25 Oct–5	20–31	10–25 Oct	20 Oct–5	15–25	5–20
Topaz <sup>(d)</sup>	Nov	Oct		Nov	Oct	Oct
Doongara						
Sherpa <sup>(d)</sup>	25 Oct–10	20 Oct–	10–30 Oct	20 Oct–5	15–30	5–25
Langi	Nov	5 Nov		Nov	Oct	Oct
Koshihikari	-	-	-	20 to 30	10 to 25	1 to 20
Illabong				Oct <sup>#</sup>	Oct	Oct
Viand <sup>(d)</sup>	10–30 Nov	5–25 Nov	1–20 Nov	5–30 Nov	1–20 Nov	25 Oct–10 Nov
YRK5	-	-	-	-	1–20 Nov	25 Oct–10 Nov

# Do not aerial sow or dry broadcast Koshihikari or YRK5 as this will increase lodging potential

## Recommended sowing rates

Rice growers should aim to achieve plant populations between 100 to 200 plants/m<sup>2</sup>. Research shows that plant populations between 40 to 400 plants/m<sup>2</sup> achieve similar grain yields. Rice plants increase tillering and the number of grains per panicle to compensate for low plant density.

**Rice should not be sown at rates higher than 150 kg/ha for any variety or sowing method.**

To establish 200 plants/m<sup>2</sup> requires a maximum sowing rate of 150 kg/ha at seed establishment percentage of 40–60%.

As little as 20% establishment will result in 100 plants/m<sup>2</sup> which is sufficient to achieve maximum grain yield.

Recommended sowing rates are based on seed size and varietal establishment

percentages (Table 4). Varieties with smaller seed size, such as Opus<sup>(d)</sup>, have more seeds per kg, so using a lower sowing rate will achieve the same plant population.

Table 4. Sowing rates (kg/ha) required to meet plant population recommendations based on seed size and establishment vigour.

Variety	Sowing rate (kg/ha)
Reiziq <sup>(d)</sup> , Illabong & Topaz <sup>(d)</sup>	150
Sherpa <sup>(d)</sup> , Langi, Viand <sup>(d)</sup> & YRK5	130
Opus <sup>(d)</sup> , Koshihikari & Doongara	120

Increasing sowing rates to compensate for poor field layout, unsatisfactory seedbed preparation or unreliable sowing method is rarely successful and not recommended.

Research has shown that lodging is increased by high plant populations in varieties with a high lodging potential.

Sowing rates may be decreased by 15–20% in reliable establishment conditions without compromising yield.

### Variety characteristics

**Reiziq**<sup>Ⓛ</sup> – A semi-dwarf medium grain variety that has elongated grain length and high yield potential. It has strong establishment vigour and is resistant to lodging but is moderately susceptible to cold temperatures during the reproductive period. Early harvest is recommended as it is a loose threshing variety with potential for shedding if left to stand in the field. Wholegrain yields are relatively high.

**Sherpa**<sup>Ⓛ</sup> – A semi-dwarf medium grain variety that has high cold stress tolerance and moderate establishment vigour. It has high yield potential and maintains grain yield levels in cooler seasons, particularly in the Murray Valley. Sherpa<sup>Ⓛ</sup> is a hard threshing variety with good straw strength and is resistant to lodging.

**Opus**<sup>Ⓛ</sup> – A semi-dwarf short grain sushi variety that is only grown in the Murray Valley. Murray Valley experience generally indicates good yields but it can occasionally be unpredictable. It has moderate establishment vigour and is resistant to lodging but is moderately resistant to cold temperatures during the reproductive period. It is a pubescent variety and is susceptible to straighthead with symptoms present as floret sterility.

**Langi** – A semi-dwarf long grain soft cooking (low amylose) variety that is only

grown in the MIA and CIA. It has moderate establishment vigour and cold stress tolerance and is moderately resistant to lodging. Early harvest is recommended, as it is a loose threshing variety with potential for shedding if allowed to stand in the field.

**Topaz**<sup>Ⓛ</sup> – A semi-dwarf fragrant long grain variety that is only grown in the MIA and CIA. It has weak establishment vigour and care should be taken to ensure good establishment. Topaz<sup>Ⓛ</sup> is resistant to lodging but is susceptible to cold temperatures during the reproductive period which can significantly reduce grain yield. It must be sown at the correct time and deep water applied during the microspore period. It is also susceptible to straighthead.

**Illabong** – A semi-dwarf arborio style medium grain variety that has a high grain yield potential. It has moderate establishment vigour and sowing rates should be increased if germination percentage is reduced due to post-flowering conditions experienced by the seed crop (you will be notified at seed issue). It has moderate cold stress tolerance and is moderately resistant to lodging.

**Doongara** – A semi-dwarf long grain hard cooking (high amylose) variety that has a low glycaemic index (GI) and is resistant to lodging. It is susceptible to cold temperatures during the reproductive period and must be sown at the correct time and have deep water applied during the microspore period. It is also susceptible to straighthead.

**Koshihikari** – A tall-strawed short grain premium Japanese variety. It is susceptible

to lodging if high rates of nitrogen are applied pre-permanent water and should not be aerial sown. It is lower yielding, but a premium is paid to compensate. Reduce total applied nitrogen by 50% compared with Reiziq<sup>Ⓢ</sup> and apply no more than 60% of total nitrogen pre-permanent water to minimise lodging. It is a very pubescent variety and is susceptible to straighthead with symptoms present as floret sterility.

**Viand**<sup>Ⓢ</sup> – A short-season semi-dwarf medium grain variety, which has a similar yield potential to Reiziq<sup>Ⓢ</sup> and provides a rice cropping option when late water allocations are announced or after canola or barley crop harvest. It has strong establishment vigour and is moderately resistant to cold temperatures during the reproductive period but is moderately susceptible to lodging. Viand<sup>Ⓢ</sup> is better suited to drill sowing and nitrogen application split between pre-permanent water and PI to reduce lodging in high yielding crops.

**YRK 5** – A short-season, short grain sushi variety that is only grown in the Murray Valley. It is susceptible to lodging if high rates of nitrogen are applied pre-permanent water and should not be aerial sown. Reduce total applied nitrogen by 50% compared with Reiziq<sup>Ⓢ</sup> and apply no more than 60% of total nitrogen pre-permanent water to minimise crop lodging. It has strong establishment vigour and moderate resistance to cold temperatures during the reproductive period.

## District variety experiment results

All new varieties are tested across a range of years and locations within southern NSW before they are released. The performance of new varieties is compared with that of standard commercial varieties over a number of years and each variety's response to different agronomic and commercial growing conditions is measured.

The agronomic recommendations for each variety at release are based on the results of these district experiments.

Before release, each variety must also be assessed in the cereal chemistry laboratory and in taste testing trials to meet the strict quality characteristics and taste requirements of our customers in the marketplace. On the basis of their yield performance and the grain quality assessments from these experiments, a very small number of varieties 'pass the grade' to be new releases for growers.

Each year all the recommendations for all the varieties are reviewed to incorporate commercial experience and responses to different climatic and growing conditions.

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